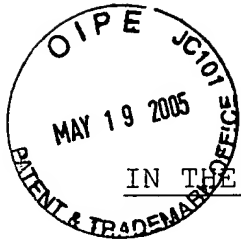


09/626,866

27d



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Certificate

MAY 24 2005

In re application : Qingping Jiang, et al.  
Patent No. : 6,783,948  
Issued : August 31, 2004  
For : CHEMILUMINESCENT ACRIDINIUM COMPOUNDS  
AND ANALOGUES THEREOF AS SUBSTRATES OF  
HYDROLYTIC ENZYMES  
Attorney's Docket : CCDLT-300XX

of Correction

\*\*\*\*\*

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: ATTN: Certificates of Correction Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 17, 2005.

By: Holliday C. Heine  
Holliday C. Heine, Ph.D.  
Registration No. 34,346  
Attorney of Record

\*\*\*\*\*

LETTER

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450  
ATTN: Certificates of Correction

Sir:

Enclosed are two completed copies of Form PTO 1050. It is requested that a Certificate of Correction be issued, pursuant to 37 C.F.R. § 1.323, to correct an inadvertent clerical mistake that arose, in good faith, during the prosecution of the above-identified patent.

05/20/2005 AW0HDAF1 00000009 6783948

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-1-

WEINGARTEN, SCHURGIN,  
GAGNEBIN & LEBOVICI, LLP  
TEL. (617) 542-2290  
FAX. (617) 451-0313

Enclosed herewith is our check in the amount of \$100.00 as payment of the fee for the above-referenced correction. In the event any additional fee is required, please charge such amount to Patent and Trademark Office Deposit Account No. 23-0804. Triplicate copies of this letter are enclosed.

Respectfully submitted,

QINGPING JIANG, ET AL.

By: Holliday C. Heine  
Holliday C. Heine, Ph.D.  
Registration No. 34,346  
Attorney of Record

WEINGARTEN, SCHURGIN,  
GAGNEBIN & LEBOVICI LLP  
Ten Post Office Square  
Boston, Massachusetts 02109  
Telephone: (617) 542-2290  
Telecopier: (617) 451-0313

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Enclosures

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# UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
 DATED : August 31, 2004  
 INVENTOR(S) : Qingping Jiang, et al.

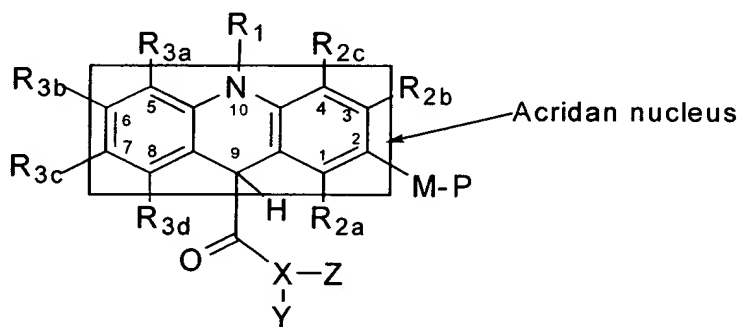
It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Front page, (57) Abstract, line 16, "it a" should read --is a--;

Column 3, line 13, "can are" should read --can be--;

Column 3, line 20, "Sasamoto at al" should read --Sasamoto et al--;

Column 15, lines 17-30, delete "Formula IV (including structure)" and insert the following Formula IV:



Formula IV

Column 15, line 34, "m group" should read --group--;

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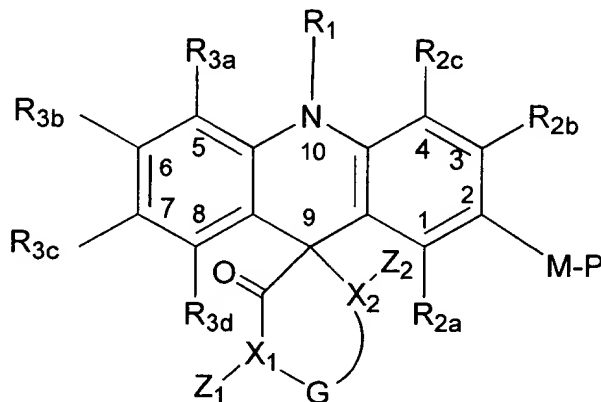


# UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
 DATED : August 31, 2004  
 INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 15, lines 42-55, delete "Formula V (including structure)" and insert the following Formula V:



Formula V

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PATENT NO. 6,783,948

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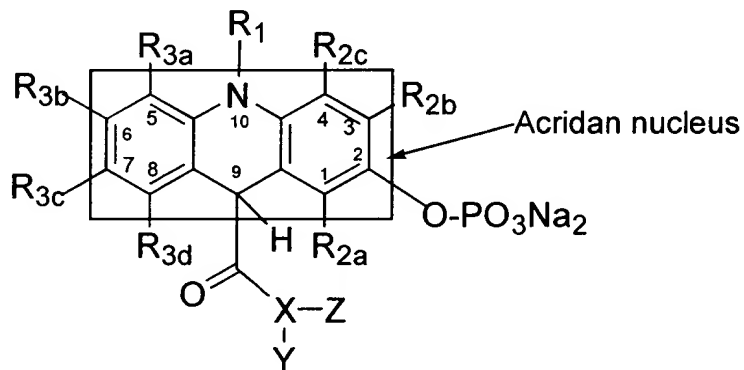
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# UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
 DATED : August 31, 2004  
 INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 16, lines 54-65, delete "Formula VIII (including structure)" and insert the following Formula VIII:



Formula VIII

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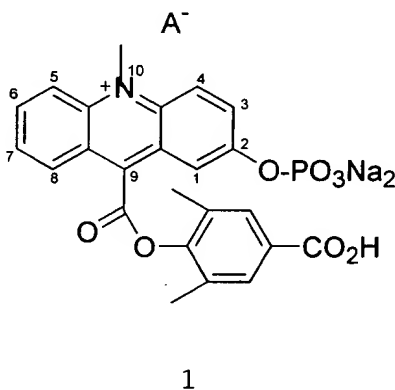
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UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
DATED : August 31, 2004  
INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 17, lines 36-50, delete "1 (including structure)" and insert the following 1:



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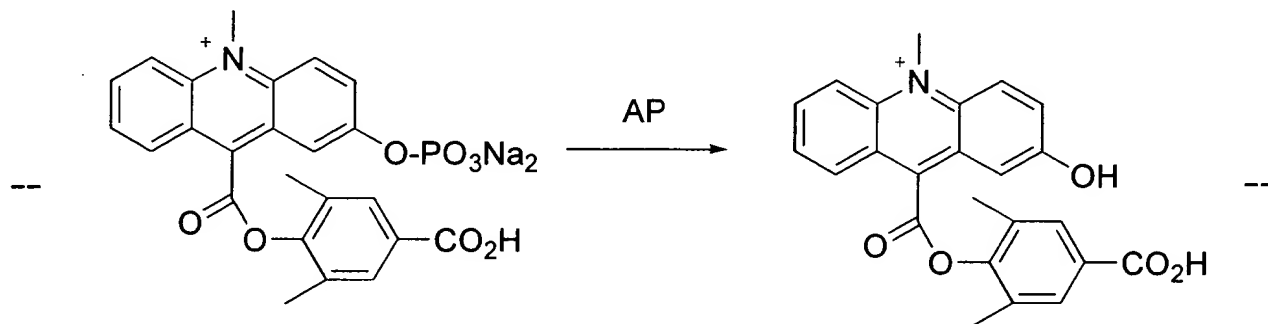
# UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
 DATED : August 31, 2004  
 INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 18, lines 5-34, delete "Reaction B (including structures)" and insert the following Reaction B:

Reaction B



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## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
 DATED : August 31, 2004  
 INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 20, line 63, "enzyme is the" should read --enzyme in the--;  
 Column 22, line 59, "fulfil this" should read --fulfill this--;  
 Column 29, line 46, "[Krika, Clin." should read --[Kricka, Clin.--;  
 Column 36, line 46, "TAF/acetonitrile" should read  
 --TFA/acetonitrile--;  
 Column 36, line 50, "(DALTI-TOF):" should read --(MALDI-TOF):--;  
 Column 38, line 31, "TAF/" should read --TFA/--;  
 Column 38, line 45, "(2-Phos-NSB-DNM, 7)" should read  
 --(2-Phos-NSB-DMAE, 7)--;  
 Column 42, line 60, "10 m)." should read --10  $\mu$ m).--;  
 Column 45, line 61, insert the following prior to  
 N-(4'-Benzyloxy)phenylisatin:

-- Example 10

Synthesis of 2-OH-Spiroacridan (12) and 2-Phos-Spiroacridan  
 (11)

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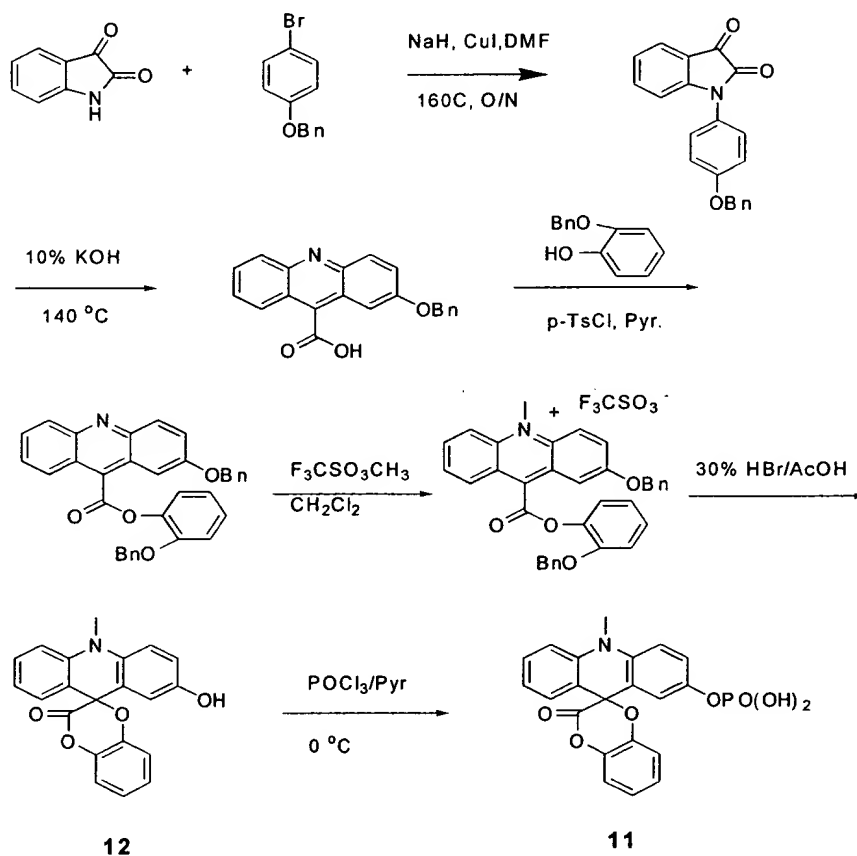




# UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
 DATED : August 31, 2004  
 INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:



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## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
DATED : August 31, 2004  
INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 46, line 54, "10  $\mu$ n)." should read --10  $\mu$ m).--;

Column 46, line 61, "(M+~1)." should read --(M+1).--;

Columns 47-50, after the paragraph following Example 11, delete formulas 13 and 15 and insert the following formulas 13 and 15:

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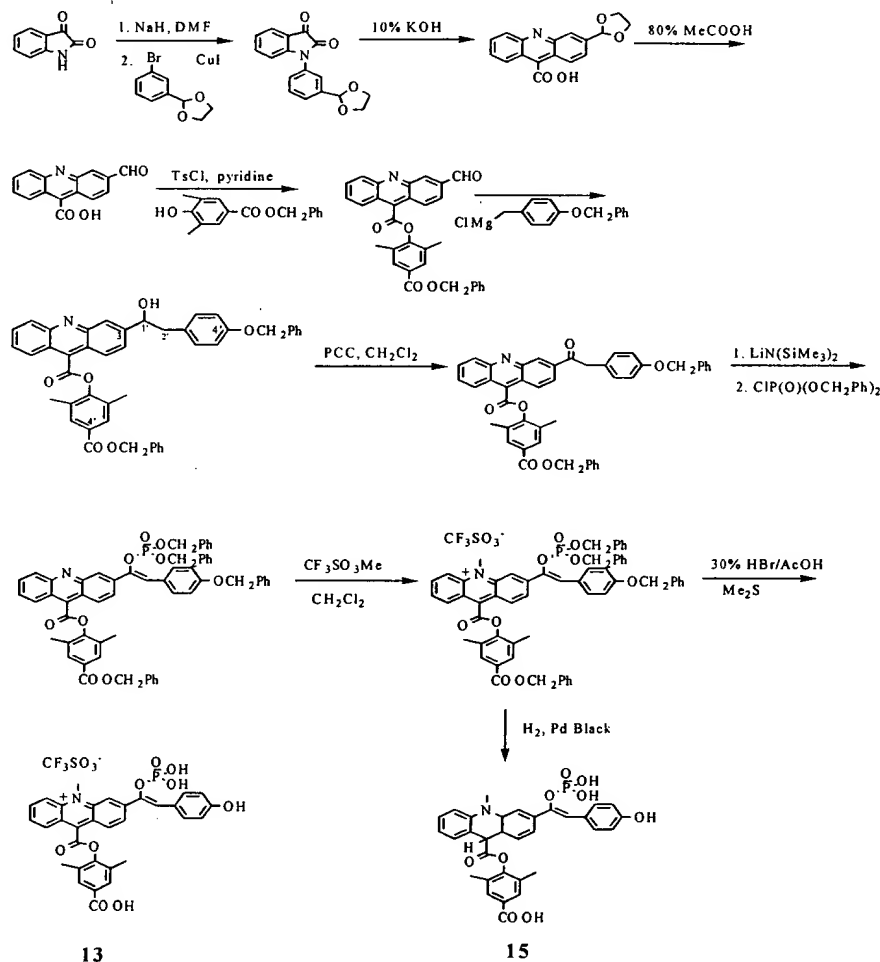


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PATENT NO : 6,783,948  
 DATED : August 31, 2004  
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## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
DATED : August 31, 2004  
INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 51, line 53, "phosphite" should read --phosphate--;

Column 57, line 18, "2-Phos-DMM" should read --2-Phos-DMAE--;

Column 60, line 50, "TSH concentration. SH" should read  
--TSH concentration. TSH--;

Column 61, lines 44-62, delete "claim 3" and insert the following  
claim 3:

--3. The chemiluminescent substrate of claim 1, wherein  
P is PO<sub>3</sub>B;  
X is O; Y is selected from the group consisting of phenyl,  
(2',6'-dimethyl-4'-benzyloxycarbonyl)phenyl and (2',6'-dimethyl-4'-  
-carboxyl)phenyl; and Z is omitted.--

Column 62, claim 8, line 48, "structures," should read  
--structure--;

Column 63, claim 11, line 53, "K2, Ca" should read --K<sub>2</sub>, Ca--;

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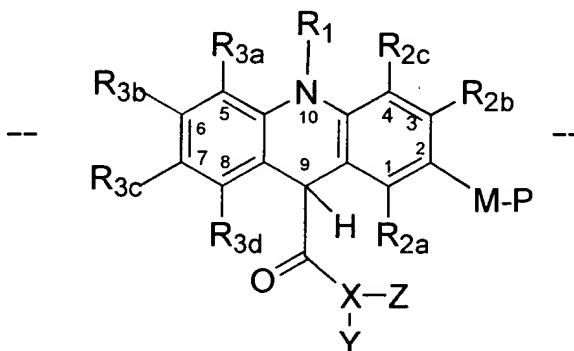
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# UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
 DATED : August 31, 2004  
 INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 66, claim 17, lines 46-59, delete the structure and insert the following structure:



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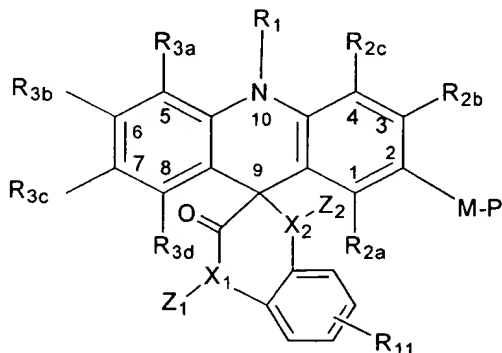
# UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
 DATED : August 31, 2004  
 INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 67-68, claim 18, delete "claim 18" and insert the following claim 18:

--18. A chemiluminescent substrate of a hydrolytic enzyme, said substrate having the structure



wherein

P is selected from the group consisting of  $\text{PO}_3\text{H}_2$ ,  $\text{PO}_3\text{K}_2$ ,  $\text{PO}_3(\text{NH}_4)_2$ ,  $\text{PO}_3\text{Ca}$ ,  $\text{PO}_3\text{Mg}$ ,  $\text{PO}_3\text{Na}_2$ , a sugar moiety and  $\text{C}(=\text{O})\text{R}$  group wherein R is an alkyl group having 1 to 6 carbon atoms;

M is oxygen;

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## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO : 6,783,948  
 DATED : August 31, 2004  
 INVENTOR(S) : Qingping Jiang, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

$R_1$  is selected from the group consisting of methyl, sulfopropyl, sulfobutyl, sulfoalkyl, and carboxymethyl;

$R_{2a}$ ,  $R_{2b}$ ,  $R_{2c}$ ,  $R_{3a}$ ,  $R_{3b}$ ,  $R_{3c}$  and  $R_{3d}$ , can be the same or different, selected from a group consisting of hydrogen, methyl, methoxy, halides, cyano (-CN);

$A^-$  is a counter ion for the electroneutrality of the quaternary nitrogen of the acridinium compounds, said  $A^-$  not being present if said  $R_1$  substituent contains a strongly ionizable group that can form an anion and pair with the quaternary ammonium cationic moiety; and

$X_1$  and  $X_2$  are the same or different and are selected from the group consisting of O, N or S, such that,

when  $X_1$  and  $X_2$  are O or S,  $R_{11}$  is selected from the group consisting of hydrogen, -R, substituted or unsubstituted aryl, halides, nitro, sulfonate, sulfate, phosphonate,  $-CO_2H$ ,  $-C(O)OR$ , cyano (-CN), -SCN, -OR, -SR, -SSR,  $-C(O)R$ ,  $-C(O)NHR$ , ethylene glycol, or polyethyelene glycol, where R is as defined above; and

$Z_1$  and  $Z_2$  are omitted; and

when at least one of  $X_1$  and  $X_2$  is N,  $Z_1$  and  $Z_2$  are toluenesulfonyl, and  $R_{11}$  is carboxypropyl.--

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